WHAT IS CLAIMED IS:

1. A micro and nano mechanical machining device comprising:

a rotatable load gear;

a micro-motor; and,

a nanotool attached to said micro-gear,

wherein said micro-motor engages and actuates said micro-gear thereby causing said micro-gear and said nanotool to rotate.

2. The device of Claim 1 wherein said micromotor is powered by at least one of the group consisting of an electrostatic comb, a micro-scale steam engine, piezoelectric mechanism, piezoresistive mechanism or a thermal actuator.

3. The device of Claim 1 wherein said tool is selected from the group consisting of a drill, a deburr, a miller, a hole puncher, a stamp, a pen, a heater or an evaporator.

4. The device of Claim 1 wherein said tool is formed by application of at least one of the group consisting of a focused ion beam, photolithography or laser.

5. The device of Claim 1 wherein said nanotool is surface engineered by being coated with metals, ceramics, polymers, liquids, composites, titanium, nickel, gallium arsenide, polyamide, silicon or multilayered titanium nitride and titanium aluminum nitride.

6. The micromachining device of Claim 1 wherein said nanotool is coated with diamond like carbon.

7. The micromachining device of Claim 1 wherein said nanotool is coated with nano crystalline diamond.

8. The micromachining device of Claim 1 wherein said tool is comprised of silicon.

9. The micromachining device of Claim 8 wherein said tool is further comprised of at least one element from the group consisting of gallium or indium.

10. The micromachining device of Claim 1 wherein said nanotool is less than one micrometer wide.

11. The micromachining device of Claim 10 wherein said nanotool is less than 100 nanometers wide.

12. A method for machining a nanoscale substrate comprising:

engaging a load gear with a micromotor such that said micromotor actuates said load gear thereby causing said load gear to rotate,

engaging said substrate with a nanotool, said nanotool being attached to said load gear;

actuating said load gear with said micro-motor thereby causing said nanotool to rotate.

13. The method for machining a nanoscale substrate of Claim 12 wherein said tool is selected from the group consisting of a drill, a deburrer, a miller, a hole puncher, a stamp or a pen.

14. A method for fabricating a micromachining device comprising:

depositing a nanotool onto a microgear;

engaging said microgear to a micromotor such that said micromotor may rotatable actuate said microgear thereby rotating said nanotool.